**Etomidate as an antiarrhythmic**

Editor—We wish to report a case of etomidate reverting ventricular tachycardia to sinus rhythm. Although there have been several case reports and studies demonstrating the antiarrhythmic effects of propofol,1–3 this has not been true of etomidate.

A 59-yr-old man presented to the emergency department with a 2 h history of central chest pain radiating to the left arm and palpitations. He denied any symptoms of shortness of breath, nausea or vomiting. He had no history of ischaemic heart disease but was taking irbesartan for hypertension. He had no other past medical history. He was an ex-smoker having stopped 30 yr previously.

On examination he was orientated with no clamminess or pallor. His pulse rate was 180 beats min\(^{-1}\) with a blood pressure of 140/100 mm Hg. On auscultation, heart sounds and breath sounds were normal with no added sounds. An initial 12-lead ECG demonstrated a supra-ventricular tachycardia with a rate of 180 beats min\(^{-1}\) and evidence of ischaemic change posteriorly. A 300 mg bolus of amiodarone i.v. failed to produce a response. Systolic arterial pressure remained stable at 140 mm Hg. Subsequently, i.v. adenosine was administered in increasing doses of 6 and 12 mg to no effect. By this time the 12-lead ECG had changed showing a rate of 200 beats min\(^{-1}\) and broadening complexes suggestive of ventricular tachycardia (VT). The blood pressure had now fallen to 96/50 mm Hg so the decision was made to cardiovert and anaesthetic assistance was sought.

Owing to the ingestion of solid food 3 h previously, the anaesthetic plan was for a rapid sequence induction with cricoid pressure and tracheal intubation followed by cardioversion. After pre-oxygenation, cricoid pressure was applied and anaesthesia was induced with etomidate. After etomidate 14 mg, it was noted that the rhythm had converted to sinus.

As the patient had been rendered apnoeic, succinylcholine 100 mg was given and the trachea intubated. The tracheal tube was subsequently removed with the patient fully awake in the right lateral position. His blood pressure was 127/87 mm Hg and sinus rhythm persisted at a rate of 90 beats min\(^{-1}\). Owing to the presence of chest pain and the electrocardiographic evidence of a posterior infarct, the patient was thrombolysed with tenectaplas and transferred to the coronary care unit.

Cricoid pressure was applied in this case but this was away from the site used for carotid sinus massage. Carotid sinus massage had not been attempted before the need for urgent cardioversion but it is unlikely to have a role in terminating VT in any case.

There have been several reports of the antiarrhythmic properties of propofol in the literature including the conversion of fast atrial fibrillation to sinus rhythm,1 the resolution and suppression of VT2 and in the termination of SVT.3 However, there have been no such reports in the literature regarding etomidate. Isolated heart studies have, however, demonstrated a decrease in heart rate and atrioventricular conduction time with etomidate.4

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**Aspiration and death associated with the use of the laryngeal mask airway**

Editor—We read with interest the recent editorial by Asai1 who highlighted those patients thought to be at increased risk from aspiration with use of the laryngeal mask airway (LMA), and the case reports of Keller and colleagues2 highlighting three cases of aspiration associated with use of the LMA.

We would like to report the case of an 81-yr-old gentleman who presented for biopsy of an enlarged supraclavicular lymph node. He had previously undergone a left hemicolectomy for bowel carcinoma, and a total thyroidecency for follicular carcinoma. There was no history of oesophageal reflux or hiatus hernia. He had been admitted 10 days previously with nausea and vomiting, and a change in bowel habit. At this time left supraclavicular and bilateral axillary lymphadenopathy was noted. He had been managed for bowel obstruction and, for 48 h, his symptoms had resolved, with no nausea, and his stoma was functioning normally. The previous day he had eaten normally with no ill effects, and had fasted overnight.

In view of the resolution of the gastrointestinal symptoms the decision was made to use a size 4 classic LMA. Anaesthesia was induced with fentanyl 50 μg and propofol 200 mg. The LMA was inserted easily and gentle ventilation was commenced initially until the patient made respiratory effort. However, it was felt that the position was suboptimal and the LMA was removed and resited on two occasions. On the second removal some green staining of the secretions on the tip on the laryngeal mask was noted. The decision was made to proceed to endotracheal intubation. Neuromuscular block was achieved with vecuronium. Ventilation with a face mask with oxygen 100% was easy with low inflation pressures and at no point was there an obstructed airway, cough, or hiccough. During the time to paralysis the patient vomited a large volume of yellowish fluid around the face mask. He was immediately turned to the left lateral position with head down tilt of the table applied whilst ventilation with oxygen 100% was continued. After suctioning of the oropharynx the trachea was intubated, after which a suction catheter was repeatedly passed and a minimal amount of yellow fluid was recovered from the lungs. During this episode the arterial oxygen saturation briefly fell to 65% but recovered quickly to 95%. A nasogastric tube was passed and a further 500 ml of non-particulate fluid was aspirated from the stomach.

The decision was made to continue with the surgery, on the basis that minimal fluid had been recovered from the trachea, there was no bronchospasm or residual impairment of oxygenation, and that a histological diagnosis could potentially lead to curative treatment. The patient remained stable for the rest of the procedure, with \(\text{FiO}_2\) of 0.5. At the end of the procedure neuromuscular blockade was antagonized. The trachea was extubated once the patient was fully awake. However, immediate reintubation was required owing to respiratory insufficiency. Over the next hour there was a rapid deterioration in respiratory and circulatory function requiring full ventilatory and inotropic support. The patient was transferred to the intensive care unit where he died within 6 h.

Histological examination of the enlarged supraclavicular lymph node revealed moderately differentiated metastatic adenocarcinoma with extracapsular spread. Post-mortem examination...
revealed a tumour in the small bowel mesentery with adherent loops of small bowel, which on histological examination was found to be lymphoma. The stomach, duodenum and jejunum were dilated. The lungs showed signs consistent with adult respiratory distress syndrome.

This case reinforces the importance of systematic preoperative assessment as previously advocated, bearing in mind the possibility of systemic involvement from disease processes. Despite the resolution of gastrointestinal symptoms, our patient was still at risk of aspiration.

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CEMACH report: oesophageal intubation

Editor—Drs Cooper and McClure rightly highlight the worrying re-emergence of unrecognized oesophageal intubation as a cause of death in Why Mothers Die 2000–2002.1

I gave my first (supervised) obstetric anaesthetics in 1963. Detailed anaesthetic records were not kept routinely but I was taught to use the record card, designed (I believe) by Dr Michael Nosworthy, whenever problems arose. This masterpiece of compression provided a time chart for vital signs with preprinted options for selection denoting drugs, techniques, complications, etc. I asked my consultant what was meant by ‘under mask’ in relation to tracheal intubation and was told that before proper connectors became available it was customary to assist ventilation by placing a face mask over the endotracheal tube. Obviously the ventilation route would be oropharyngeal if the tracheal tube was wrongly sited. I used this system in certain circumstances when I had doubt about the correct placement of a tube but had had such difficulty with laryngoscopy that I found myself reluctant to remove a tube. I have subsequently always rejected the simplistic maxim ‘when in doubt, take it out’ in debates on recognition and management of airway problems.

Years later this method saved a patient’s life when I was called by nursing staff to a theatre where a patient was clearly in extremis but a colleague would not entertain the possibility of a misplaced endotracheal tube. Patency had been checked and bronchodilators given. Disconnecting the breathing system from the tube, adding a face mask and using this to hand ventilate transformed the patient’s colour and chest movements. Diagnosis and treatment were simultaneous.

It would have been psychologically (and hence physically) extremely difficult to have used any other approach and I believe the psychology of this type of situation has been seriously neglected. The mortality report comments ‘in all these cases, there appeared to be a major reluctance on the part of the anaesthetist to consider the possibility that the oesophagus had been intubated in error’. One had hoped that the introduction of reliable monitoring (one of the constant joys of my later days in anaesthetic practice) would have eliminated these problems, nevertheless information is only part of the battle, a manoeuvre that simultaneously diagnoses and treats a problem is worth remembering.

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Nasotracheal intubation

Editor—We read with interest Piepho and colleagues’ description of a traumatic nasotracheal intubation (NTI) in a patient with an unanticipated difficult airway.1 We would like to suggest an addendum to Piepho’s algorithm for NTI.

Any algorithm for NTI should include anticipated difficult airways. We feel this is pertinent as the nasal route is often used in cases with inadequate mouth opening and for oral and maxillofacial surgery. We have previously described the airway management with NTI in patients with anticipated difficult airways.2

In the ‘NTI in anticipated difficult airway’ algorithm, we too like to look before we leap! First, we assess the airway under anaesthesia. When NTI is used for potentially difficult airways, it is important to maintain spontaneous ventilation.3 A preliminary laryngoscopic view under anaesthesia is useful for patients with adequate mouth opening.4 In Piepho’s algorithm, ‘direct laryngoscopy’ could be renamed ‘preliminary laryngoscopy’. If the view is Cormack–Lehane (CL) 1 or 2, the plane of anaesthesia is further deepened using i.v. or volatile anaesthetic agents. Intubating laryngoscopy and tracheal intubation follows. NTI has been successfully performed without neuromuscular blockade.5 If the view is CL 3 or 4 or if laryngoscopy cannot be performed, the alternatives suggested by Piepho can be adopted.

The nasal cavity evaluation can also be carried out under anaesthesia; best immediately after the preliminary laryngoscopy. The apparently more patent nostril would have been already selected preoperatively by the airway patency test5 and suitable vasoconstrictors applied. If the nasal passage seems unsuitable for tracheal tube passage then the oral route or submental route may be used. Smith and Reid6 found a high incidence of intranasal pathologies (68% of their patients) that would make nasotracheal intubation difficult and have suggested fiberoptic intubation to select the best nostril. However, they add that despite major abnormalities, these patients do not sustain serious injury more frequently during intubation. We agree with their opinion that with experience, anaesthetists develop an acute sense of how much pressure they can apply on the tracheal tube before they abandon it for the other nostril.

Because of bleeding, Piepho and colleagues found themselves dealing with a dangerously difficult airway,7 possibly because they attempted NTI in a single step. Successful nasotracheal intubation, as described in their and other8 algorithms, consists of three important steps—adequate laryngoscopic views,atraumatic nasopharyngeal intubation, and passage of the tube into the trachea.

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